



# What would happen if GPS failed?

May 6, 2016



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The radio signal that is the lifeblood of the Global Positioning System originates from a constellation of twenty-four satellites, orbiting more than twelve thousand miles above Earth. When it reaches the ground, after about sixty-seven milliseconds, it is so weak as to be almost imperceptible. (G.P.S. experts often compare processing the signal to trying to read by the light of a single bulb in a city thousands of miles away.) The signal tells the receiver the precise moment at which it left the satellite. Given four of these cues, processed simultaneously, the receiver can extrapolate its position in three dimensions. A timing error of as little as a millisecond can throw its calculation off by nearly two hundred miles.

Fourteen years ago, a team at Los Alamos National Laboratory, in New Mexico, built a spoofer by modifying a G.P.S.-signal simulator (a legal device that tests receivers' accuracy) and aiming it at a stationary receiver more than a mile away.

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May 6, 2016By Greg Milner - For [The New Yorker](#)

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